

WHAT IS CLAIMED IS:

1. A vehicle comprising:
a chassis;
a storage and dispensing apparatus, the storage and dispensing apparatus disposed upon the chassis, the storage and dispensing apparatus including a hopper for storing material, a conveyor assembly for selectively transporting material from the hopper, at least a portion of the conveyor assembly disposed within the hopper, a liquid storage system for storing liquid, and a liquid dispensing system for selectively dispensing liquid from the liquid storage system.
2. The vehicle of claim 1 further comprising:
a body, the body being mounted to the chassis, the body comprised of front and rear ends, and first and second side walls, the storage and dispensing apparatus being disposed upon the body, the body being disposed between the chassis and the storage and dispensing apparatus.
3. The vehicle of claim 2 wherein body is pivotally mounted to the chassis.
4. The vehicle of claim 2 wherein the storage and dispensing apparatus is disposed within the first and second side walls of the body.
5. The vehicle of claim 4 wherein the storage and dispensing apparatus includes a rear end which extends beyond the rear end of the body.
6. The vehicle of claim 1 wherein the storage and dispensing apparatus includes front and rear ends, first and second side walls, first and second common walls, and a base, the common walls, the base, and the front and rear ends defining the hopper.
7. The vehicle of claim 1 wherein the conveyor assembly comprises a pair of augers in substantially parallel, spaced relationship to each other.

8. The vehicle of claim 1 wherein the storage and dispensing apparatus includes front and rear ends, first and second side walls, first and second common walls, a bottom, and an intermediate base, the front and rear ends, the first and second side walls, the first and second common walls, the bottom, and the intermediate base, defining a liquid containment vessel for the liquid storage system.

9. The vehicle of claim 8 wherein the liquid containment vessel includes first and second side sections disposed between the first side wall and the first common wall and the second side wall and the second common wall, respectively, and a connecting section disposed between the first and second side sections, the connecting section disposed between the bottom and the base.

10. The vehicle of claim 9 wherein the liquid containment vessel includes a plurality of braces disposed within the first and second side sections.

11. The vehicle of claim 10 wherein the braces each include a plurality of holes therein.

12. The vehicle of claim 1 further comprising:
an agitation system for mixing liquid stored within the liquid storage system.

13. The vehicle of claim 1 wherein the liquid dispensing system includes a pre-wetting system and an anti-icing system.

14. The vehicle of claim 13 wherein the liquid dispensing system includes a liquid dispensing element.

15. The vehicle of claim 14 wherein the liquid dispensing element comprises a nozzle.

16. The vehicle of claim 13 wherein the liquid dispensing system includes a plurality of liquid dispensing elements which comprise nozzles.

17. The vehicle of claim 16 wherein the anti-icing system includes a pair of nozzles assemblies, the nozzle assemblies depending from the storage and dispensing apparatus.

18. The vehicle of claim 17 wherein each nozzle assembly includes an upper pair of nozzles, a lower pair of nozzles, and an intermediate pair of nozzles disposed between the upper and the lower pairs.

19. The vehicle of claim 18 wherein each nozzle is rotatable.

20. The vehicle of claim 19 wherein each nozzle is rotatable along at least two perpendicular axes.

21. The vehicle of claim 13 wherein the hopper includes a discharge chute, and the pre-wetting system includes a liquid dispensing element disposed in the discharge chute.

22. The vehicle of claim 21 wherein the liquid dispensing element comprises a nozzle.

23. The vehicle of claim 1 wherein the storage and dispensing apparatus includes a plumbing cabinet for housing at least a portion of the liquid dispensing system.

24. The vehicle of claim 1 further comprising:
a control system for controlling the liquid dispensing system.

25. The vehicle of claim 1 wherein the storage and dispensing apparatus includes a clean-out passage which is connected to the liquid storage system.

26. The vehicle of claim 1 wherein the hopper includes an opening, and the storage and dispensing apparatus includes a plurality of grate screens for selectively covering the opening of the hopper.

27. The vehicle of claim 26 wherein the storage and dispensing apparatus includes an interlock system associated with the gate screens such that the interlock system selectively prevents the gate screens from moving.

28. A vehicle comprising:

a chassis;

a storage and dispensing apparatus, the storage and dispensing apparatus disposed upon the chassis, the storage and dispensing apparatus including a liquid storage system for storing liquid and a liquid dispensing system for selectively dispensing liquid from the liquid storage system; and

a control system for monitoring at least one parameter and controlling the liquid dispensing system depending on the condition of the at least one parameter.

29. The vehicle of claim 28 wherein the parameter comprises at least one from the group consisting of ground speed, air temperature, surface temperature, surface area to be treated, rate of precipitation, form of precipitation, speed of the vehicle, dispensing rate of the liquid, spray pattern of the liquid, the dispensing rate of the material, direction of the material, velocity of the material, and the spread pattern of the material.

30. The vehicle of claim 28 wherein the liquid dispensing system includes an anti-icing system for selectively dispensing liquid from the vehicle and a pre-wetting system for selectively dispensing liquid onto material being transported by the endless conveyor out of the vehicle.

31. The vehicle of claim 28 wherein the liquid dispensing system includes a liquid dispensing element.

32. The vehicle of claim 31 wherein the liquid dispensing element comprises a nozzle.

33. The vehicle of claim 28 wherein the liquid dispensing system includes a plurality of movable nozzles, the control system monitoring the position of the variable displacement nozzles and controlling the movement thereof.

34. A vehicle comprising:

a chassis;

a body for storing material, the body being mounted to the chassis, the body comprised of front and rear ends and first and second side walls; and

a conveyor assembly comprising at least two augers disposed in substantially parallel spaced relationship to each other between the side walls, the augers configured to selectively transport material from the body out of the vehicle;

35. The vehicle of claim 34 wherein the conveyor assembly includes a sealed lubrication system for the augers.

36. The vehicle of claim 34 wherein body comprises a V-box spreader.

37. The vehicle of claim 34 wherein the conveyor assembly comprises two augers and includes a pair of motors to operate the augers, and the augers each including a first end, a second end, and a shaft, the first end of each auger being supported adjacent the front end of the body by a bearing, and the second end of each auger being supported by the motors, respectively.

38. A vehicle comprising:
a chassis;
a body for storing material, the body being mounted to the chassis, the body comprised of front and rear ends and first and second side walls;
a conveyor assembly configured to selectively transport material from the body out of the vehicle;
a liquid storage system for storing liquid, the liquid storage system mounted to at least one of the chassis and the body; and
a liquid dispensing system for selectively dispensing liquid from the liquid storage system, the liquid dispensing system mounted to at least one of the chassis and the body, the liquid dispensing system including an anti-icing system for selectively dispensing liquid from the vehicle and a pre-wetting system for selectively dispensing liquid onto material being transported by the endless conveyor out of the vehicle.
39. The vehicle of claim 38 wherein the conveyor assembly comprises an auger.
40. The vehicle of claim 38 wherein the conveyor assembly comprises an endless chain conveyor disposed between the side walls and extending beyond the rear end of the body.
41. The vehicle of claim 40 wherein the rear end of the body includes an opening, the vehicle further comprising:
a feed gate assembly for selectively covering the opening of the rear end of the body, the feed gate assembly being mounted to the body.
42. The vehicle of claim 38 further comprising:
a spreader disc mounted to at least one of the chassis and the body, the spreader disc being cooperatively arranged with the conveyor assembly to receive materials therefrom.

43. The vehicle of claim 42 further comprising:
a spreader chute and a spreader disc, the spreader chute being operably arranged with the conveyor assembly to receive materials therefrom and to direct the materials to the spreader disc for selectively spreading materials.
44. The vehicle of claim 38 further comprising:
a spreader assembly operably arranged with the conveyor assembly to receive materials therefrom and to direct the materials in a spread pattern at a flow, the spreader assembly adapted to adjust the spread pattern and the flow of material.
45. The vehicle of claim 38 wherein the liquid storage system includes first and second liquid storage tanks.
46. The vehicle of claim 38 wherein the liquid dispensing system includes a manifold having a plurality of lines fluidly connected thereto, the manifold being fluidly connected to the anti-icing system and the pre-wetting system, the manifold operable to control the flow of liquid from the liquid storage system to the anti-icing system and to the pre-wetting system.
47. The vehicle of claim 43 wherein the liquid dispensing system includes a manifold having a plurality of lines fluidly connected thereto, the manifold being fluidly connected to the anti-icing system and the pre-wetting system.
48. The vehicle of claim 38 wherein the pre-wetting system includes a liquid dispensing element.
49. The vehicle of claim 48 wherein the liquid dispensing element comprises a nozzle.
50. The vehicle of claim 38 wherein the pre-wetting system includes a plurality of nozzles.

51. The vehicle of claim 50 further comprising:
a spreader assembly including a spreader chute and a spreader disc, the spreader chute being operably arranged with the conveyor assembly to receive materials therefrom and to direct the materials to the spreader disc for selectively spreading materials;
wherein the pre-wetting system includes a plurality of nozzles fluidly connected to the manifold via the lines, the nozzles being disposed within the spreader chute.
52. The vehicle of claim 38 wherein the anti-icing system includes a liquid dispensing element.
53. The vehicle of claim 52 wherein the liquid dispensing element comprises a nozzle.
54. The vehicle of claim 38 wherein the anti-icing system includes a plurality of nozzles.
55. The vehicle of claim 54 wherein the nozzles of the anti-icing system are selectively movable.
56. The vehicle of claim 55 wherein the anti-icing system includes a plurality of deflector plates for selectively moving the nozzles.
57. The vehicle of claim 56 further comprising:
a spreader assembly including a spreader chute and a spreader disc, the spreader chute being operably arranged with the conveyor assembly to receive materials therefrom and to direct the materials to the spreader disc for selectively spreading materials;
wherein the deflector plates are pivotally mounted to the spreader chute and depend therefrom, and the nozzles depend from the deflector plates.

58. A vehicle comprising:

a chassis;

a body for storing material, the body being mounted to the chassis, the body comprised of front and rear ends and first and second side walls, the body including a horizontal side brace;

a conveyor assembly disposed between the side walls of the body, the conveyor assembly configured to selectively transport material from the body out of the vehicle;

a liquid storage tank for storing liquid; and

a liquid dispensing system for selectively dispensing liquid from the liquid storage system, the liquid dispensing system mounted to at least one of the chassis and the body.

59. A vehicle comprising:

a chassis;

a body for storing material, the body being mounted to the chassis, the body comprised of front and rear ends and first and second side walls, the body including a horizontal side brace;

a conveyor assembly disposed between the side walls of the body, the conveyor assembly configured to selectively transport material from the body out of the vehicle;

a liquid storage tank for storing liquid, the liquid storage tank including a groove for accommodating the horizontal side brace of the body; and

a liquid dispensing system for selectively dispensing liquid from the liquid storage system, the liquid dispensing system mounted to at least one of the chassis and the body;

wherein the groove of the storage tank engages the horizontal side brace of the body.

60. The vehicle of claim 59 wherein the body comprises a pair of horizontal side braces disposed respectively on the first and second side walls, and further comprising:

a second storage tank, the second storage tank having a groove;

wherein the grooves of the storage tanks respectively engage the horizontal side braces of the body.

61. The vehicle of claim 60 wherein the liquid dispensing system includes an anti-icing system for selectively dispensing liquid from the vehicle and a pre-wetting system for selectively dispensing liquid onto material being transported by the endless conveyor out of the vehicle.

62. The vehicle of claim 59 wherein the storage tank includes a top wall, a bottom wall, first and second side walls, and an inclined wall, the inclined wall including the groove.

63. The vehicle of claim 60 wherein the storage tanks each include a top wall, a bottom wall, first and second side walls, and an inclined wall, the inclined wall including the groove.

64. The vehicle of claim 63 wherein the inclined walls of the tanks substantially conform, respectively, to the first and second side walls of the body.

65. The vehicle of claim 64 wherein each inclined wall is disposed at an angle between about 22° and about 60° with respect to the associated side walls of the storage tank.